

POINTS ON THE TREATMENT OF EPILEPSY.

An Abstract of a Lecture delivered before the Class of the
Kansas City Medical College, at the
City Hospital.

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REPORTED BY COLFAX SANDERSON, ESQ.

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Gentlemen:—At our last meeting we had concluded the consideration of the general symptomatology and the principal ætiological factors of epilepsy. In this lecture our remarks will be confined principally to the treatment of this affection, making sufficient bearing, however, upon the pathology and ætiology to make our remarks practicable. This case here before you is one of the cases presented to you previously, but as the treatment was not then mentioned, I desire to bring him before you again to illustrate one point in the past methods of the treatment of epilepsy. The first to attract our attention is the man's peculiar complexion; this is characteristic of the systemic condition resulting from the prolonged and injudicious use of argenti nitras. At one time the nitrate of silver was given heroically, but at the present time is considered to be of little or no value whatever in the treatment of epilepsy. Unfortunately in dealing with epilepsy, we have no standard or uniform pathology to reason from. Therefore we consider it first as a symptomatic affection which may result from numerous pathological conditions. Of organic or symptomatic epilepsies, we find them arising from encephalic and nonencephalic or peripheal diseases; traumatism may give rise to either form of the disease. Frequently toxæmic conditions are to be held directly and indirectly as potent factors concerned in the genesis of epilepsy. Uremia is probably the most productive in this condition, and the diathetic diseases, such as gout and rheumatism, are held responsible by some writers as also being influential. However, these are usually easily recognized and a proper analysis of the indications will enable us to establish a rational line of treatment.

But, again, unfortunately for our easy progress, we find a stumbling block in the form of a class of cases in which we can find no gross lesion or toxæmic state present; hence, for convenience sake, we call this idiopathic until we can do better. However, I am glad to say scientific and pathological researches are throwing some light on the subject and each year the number of idiopathic cases are becoming reduced.

Dr. Seguin reported a case illustrating this point conclusively. The patient, a physician's wife, was for a long time under the care of Brown Sequard, and during this period was examined by many eminent men. Her seizures were both severe and mild, characteristically epileptic, were bilateral and accompanied with an ascending epigrastric aura. All indications present were purely and simply that of a common epileptic. Shortly after the patient came under Dr. Seguin's observation, there were hemi-symptoms developed, such as numbness, anæsthesia and paresis, and subsequently choked disc appeared. The post mortem revealed a gliomatous tumor occupying the left thalamus and internal capsule. Dr. Seguin believes this growth to have been present from the first, some eleven years before, that it grew slowly in the beginning and finally took on a rapid growth.

From this, then, we can understand how we may be led to consider an

affection of this character as being idiopathic at first, which may in time develop its real organic significance.

We find the idiopathic form presenting itself for study in several phases, all of which we are forced to look at with a certain amount of indefiniteness. The first to attract us is the presence of some hereditary tendency which may be either direct or indirect. There may be a parental history of over-indulgence and debauchery, excessive sexuality and alcoholism, perhaps syphilis, and added to this a most potent factor, namely chronic starvation.

In examining cases, I usually look for some of the following, viz., cranial asymmetry, microcephalus, rachitis in children, hydrocephalus, and a history of forceps delivery, or an asphyxial state at birth, with or without convulsions.

Reflexes demand a word, and in this instance I would impress upon you the importance of not being led into one-sided reasoning through the influence of various popular crazes, such as eye strain, uterine or ovarian irritation. At one time the profession resorted to the wholesale castration of women for the cure of hystero-epilepsy.

As great a craze, however, as has been known to the profession, is that inaugurated by Dr. Stevens and fanned to a flame by his friend, Dr. Ranney, of New York. I refer to the indiscriminate cutting of eye muscles by these gentlemen for the relief of eye strain, which they consider a direct cause of epilepsy and various diseases of the nervous system. Dr. Stevens persuaded himself that eye strain, due to imperfect accommodation, was the key note to the genesis of epilepsy, and his procedure was that of withdrawing the bromides, cutting the eye muscles and giving glasses. As a result of blind enthusiasm fully fifty per cent of recoveries was reported; of course the profession was astounded. A commission was appointed by the New York Neurological Society to test the efficacy of a procedure which promised such a renovation of degenerated humanity, the same to be done conjointly with Dr. Stevens. After a period of two and a half years, they made their report in November, 1889, to the society, which report consisted of, I think, nine cases, not one of which was cured, three slightly improved, and the remainder were unimproved. There were other cases not included in this report, as they became much worse after a short period of treatment and withdrew from the cause rather than be sacrificed to science in an unscientific manner.

This one-ideaism, though still in progress, is certainly void of any practically scientific advancement, and must ultimately find its usefulness confined to a more limited field than that claimed for it by Dr. Stevens and his disciples.

While I make war on crazes and mono-ideas, do not infer that I discard all irritations from this consideration, for I believe they have their injurious effects and must be sought for and removed; they may be due to various causes, such as ovarian or uterine disorders, a phimosis, eye strain, nasal polypi, etc. These certainly are not to be overlooked, but while they are attracting your attention, do not lose sight of your primary disease (the epilepsy), which is slowly but surely blotting out both the intellectual and physical forces of your patient.

Irritations in epilepsy act about as follows: They are constantly sending nervous impressions to an already anæmic and functionally crippled group of corticle cells. These become surcharged, due to the accumulation of these abnormal impressions, the equilibrium of energy and the restraining power of energy is overcome, and as a natural consequence an explosion of nerve force (a fit) takes place. This disturbance of cellular force may at first be localized, but when the equilibrium between the generation of force and liberation of force has been overcome in a single convulsion, and the explosion takes place,

its tendency is to disturb the equilibrium in the adjoining convolution, and should it spread from one gyrus to another we may have the entire corticle area implicated and a general convulsion resulting, though, as just stated, the morbid process to begin with may have been, in a sense, localized. From this, I trust, you will be practical in your summary of conclusions on this subject and put the secondary or irritative phenomena in the category to which they belong.

In idiopathic epilepsies, then, I would say, be rational in your plan of treatment; be searching in your examination and eliminate all discoverable secondary causes, and in connection with this do not overlook the hygienic conditions. The regulation of the diet is of great importance; avoid all indigestible material and advise a mild and nutritious form of food.

Be guarded in your reports as cured. Seguin and others report cases where the seizures have returned after an immunity of from three to eleven years; hence, while the convulsions may have apparently ceased, showing our ability to control them and hold them in check, their tendency to return after so long a period of absence would indicate the difficulty of entirely eradicating the real seat of the disease.

MEDICATION.—In adopting a line of treatment do not be in a hurry, but take plenty of time, see your patient often for the purpose of adjusting the dose, studying the case well, and observing the indications and contra-indications. Many drugs have been used, but our time is limited and we will confine our remarks to the use of the bromides principally. Remember we do not prescribe the drug as an *enemy* to the disease, but it is given for the purpose of overcoming the excitability, and thereby bringing the hypersensitiveness of the corticle cells to within a point of control. That we may accomplish this without plunging our patient into a deplorable state of bromism is no easy matter, unless extreme care be taken at the commencement so as to find the exact dosage required to bring about a condition just short of the bromic stage.

The "haphazard" plan of seeing a case once or twice and prescribing a bromide three times a day as is so often done by a certain class of physicians, is a very injudicial line of procedure and merits severe criticism to say the least; the patient is sure to either get too much or too little of the drug, both of which are deleterious, and must bring discredit upon his physician sooner or later.

DOSAGE LAWS.—First—Your success will depend largely on your ability to observe indications and contra-indications. We find different individuals given different systemic effects from equal doses of the drug; for instance, a young woman twenty-three years of age being given three fifteen-grain doses for ten days, came readily under the physiological effect of the drug, when on the other hand I have given from sixty to two hundred grains a day in other cases without any serious effect.

Second.—Physiological experiments are always based upon the size and weight of the animal; hence, we should remember this in prescribing for adults and children, for their capacity for withstanding the drug will be in accordance, or proportionately, to the weight and size of the individual, with the exception of children seven years of age and younger. Under this age, clinically, it seems they bear larger doses, proportionately, than do adults, of both the bromides and iodides. This is explained on the grounds that while so young the assimilation and elimination are more active than at more advanced ages.

Third.—Organic heart disease, cerebral neoplasm (or anything organic

pertaining to the brain), weak heart, sluggish circulation, all of which increase the tendency to bromism by reducing the general vitality of the patient. This then renders the examination of the heart and circulation imperative to successful prescribing, and it is the recognition of such complications that enables us to use auxiliary drugs to advantage; in *weak* heart, strophanthus should be given (see article on strophanthus, by the author, in *Kansas City Medical Record*, October, 1890); in *organic* heart disease, digitalis is indicated.

Fourth.—The third therapeutical factor to be accomplished is to keep the patient just short of bromism. Impending bromism should be readily recognized, but do not depend on the acne as a guide, for it is of little value. Acne depends more upon a peculiarity of the patient for its production than it does upon the amount of the drug taken; abnormal conditions of the sebaceous glands, deficient activity of the skin, and imperfect action of the excretory organs generally are potent factors in the production of acne.

Where acne is annoying or severe it may be prevented or relieved by the use of Fowler's solution of arsenic, providing the bromide is given properly diluted. The indications of bromism are, loss of reflex action of the fauces and soft palate, dull, listless and lethargic state, weakened heart and circulation, weakness of muscular action, staggering gait and anorexia. Now if the drug be pushed, more severe symptoms are produced, such as increased knee reflex, dementia, imperfect speech, foul breath, hallucinations, possibly active delirium, and prior to death a typhoid condition. From this you will comprehend the importance of keeping the patient just short of bromism and the delicacy required to perfect the same; we must avoid insufficient amount thereby not allowing the nerve centers to regain sufficient excitability to permit of an attack and at the same time keeping your patient out of an undesirable state of bromism. That bromides produce mental enfeeblement and insanity is not received with favor by good authorities to-day. Statistics show that fewer epileptics become demented and insane to-day, when properly treated with bromides, than they did years ago. The inherent tendency of the disease is toward mental degeneracy, and unless active therapeutical measures are installed, insanity or dementia ultimately await the epileptic if an intercurrent disease does not end his life.

Fifth.—The choice of bromides and the manner in which they should be given are now to be considered. My hospital experience coincides with the popular teaching of to-day, namely, that a simple bromide is to be preferred to that of any combination of bromides. If there is any choice between the bromides it is in favor of the bromide of sodium; chemically one atom contains 78 per cent of bromine, while bromide of potassium contains 53 per cent of bromine. The former is less irritating to the digestive organs and when given well diluted it is not unpleasant to the taste; the latter is a heart depressant, irritates delicate digestive organs, and is unpleasant to the taste. However, it has seemed to me in some instances that the bromide of potassium has been more effective in controlling very severe epilepsies than has the sodium—salt, though I use the latter in the majority of cases. In the hospital we used a solution of a certain known strength, and when we spoke of so many minims or measures, we knew at once the amount of the drug it contained and I have continued to use it on account of its easy calculation; it is one to four:

R	Sodii Bromidi.....	℥i
M.	Aq. ad.....	℥iv

One teaspoon contains about fifteen grains.

When the patient tells you he is taking one or one and a half teaspoon-

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fuls, you calculate at once the amount of the drug he is taking. Combining other drugs with your bromide is no advantage and only tends to complicate the dosage system. Water is the best and only vehicle that I use and advise for the administration of the bromides, and the more diluted the solution is, the better it is for the patient. Many times during my early practice have I had to deal with very unpleasant gastric symptoms due to giving the bromides in too concentrated a form. I direct a patient to take from half to a tumblerful of water to be used in the administration of from fifteen to thirty grains of the drug, and that this should be taken at leisure. It is not desirable to throw it all into the stomach at once. This mode of administration prevents irritation and facilitates absorption, and the excessive fluidity promotes elimination, thereby being a prophylactic to the acne with which we so often have to contend. There is some advantage in using some of the alkaline waters or rendering the water alkaline by the addition of a few grains of bi-carbonate of soda.

Sixth.—*When to administer the drug* will vary with each case. In order to ascertain this point, as much information as can be obtained from the friends and patient is essential, and for a time the case must be studied with a view to finding out at what particular time in the twenty-four hours the seizures are most apt to occur. Also if there is any tendency to periodicity in the occurrence. To accomplish this, I find the table given below of much assistance. So far as I am aware, this form of recording these cases is only used by myself. You will observe it gives the date, day of the week, and which six hours in the twenty-four to which the convulsion belongs; also if the seizure is of the petit-mal or grand-mal variety. Such a record will often be found of utility in after treatment, as it may enable us to anticipate series of seizures and ward them off:

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	Sunday.			Monday.			Tuesday.			Wednesday.			Thursday.			Friday.			Saturday.		
	A	M	P	A	M	P	A	M	P	A	M	P	A	M	P	A	M	P	A	M	P
DATE	2			3			4			5			6			7			8		
MILD.....			1											1							
SEVERE...			2			3			1			2					1				1
DATE	9			10			11			12			13			14			15		
MILD.....												1						1			
SEVERE...									1												
DATE	16			17			18			19			20			21			22		
MILD.....						1															
SEVERE...																		1			

The author's table illustrating a three week's record, showing number of severe and mild convulsions, and each recorded in the period of six hours of the twenty-four to which it belongs. By the addition of dotted lines to each A. M. and P. M. a record of every three hours in the twenty-four could be kept. You will observe by the end of the first week the severity of the seizures was changed.

Where we are able to anticipate the attacks I prefer giving most, if not all, of the bromide required to influence the patient for the twenty-four hours, from four to six hours prior to their expected development. This may be termed the expectant plan of treatment, but it is also the expectant plan that gives us so much success in treating malaria with quinine. Diurnal and nocturnal attacks frequently come on with marked regularity and the table will at once show to which side of midnight or mid-day each seizure belongs. When they come on before midnight I prefer giving the entire amount of the

bromide, required to influence the patient for the twenty-four hours, in the early part of the evening so as to get a full bromide effect just prior to the expected attack. Again if the fits come on in the after part of the night, or just before rising, I direct the patient to be awakened in time to receive his full dose whereby the seizures are often prevented. This habit must be broken if you expect to benefit your patient. When we have an irregularity of the development of the attacks then we must give the drug at stated intervals in sufficient amount to keep the nervous system in an even state of quietude and non-irritability. The drug administered in the morning, on rising, is readily assimilated, and this is a good time to give it, unless it irritates the stomach; should it do this then you must wait until food has been taken into the stomach. Bromides and iodides are not borne well by many on an empty stomach, and this is important to remember as our digestive process must be preserved.

After obtaining the required amount of the bromide to ward off the attacks the patient may go a long time without any change in the dosage system already established. In females, however, we frequently find the attacks undergoing some change just prior to, during, or following the menstrual period. In such an instance I anticipate the period, and increase the dose for the time being, and often prevent, or mitigate, this exacerbation. After a few days are past then you should substitute the original dose again until the approach of the next menstrual flux when the prophylactic plan should be repeated. For instance, if the usual dosage is from fifteen to thirty grains a day I increase the amount to forty, sixty, or more grains for the few dangerous days of menstruation. We have other instances requiring both increase and decrease in dosage that should be here considered, though the continuous dosage is the feature to bear in mind.

Increase is necessary. First—After prolonged use of drugs in young persons, for here we have increase in weight and size, which physiologically demands an increase to preserve the same systemic effect, unless convalescence has taken place. In girls the development of the menses require increased dose.

Second—Anything fatiguing or exciting should be preceded by an extra dose, such as going out on a short journey or attending an entertainment of some kind. It is by attending to these little things that we are enabled to break up the spasmodic habit which eventually brings success. The dose should be decreased from various causes; first an immunity from the attacks for three years justifies a decreased dose to be made very gradually so that by the end of the fourth year, in favorable cases, the medicine may be discontinued, but even then I advise a dose to be taken prior to an expected extra excitement or fatigue.

Third—Bromides have greater effect on the system during not and debilitating weather; maximum doses are well borne in cold weather; hence during the hot months the dose should be reduced.

Fourth—Acute illness and traumatisms are of themselves against epileptic seizures and are really prophylactics while they exist. Also, the system under such conditions yields more readily to the bromides and we may get complete bromism unless the dose is reduced or discontinued during the active period of the acute affection. My friend Dr. Powell relates a case recently of a chronic epileptic who received a fracture of a limb, and by some, it was thought peculiar that the patient had no more seizures for the time being; this is simply one of the peculiarities of epilepsy. The details

here given may seem a little prolonged but when I tell you that they are not to be found in your books on this subject, and that your success in medicine will be the outgrowth of your practical knowledge of the *little things* in this connection, I trust you may see the necessity for giving it a kindly consideration.

The question arises should the patient be allowed to carry out his own dosage system? I should say most certainly not for no epileptic is at all times in a proper mental state to consider anything of importance. Mental defects of all degrees are present at some time in various cases. Their memory at intervals is a blank; the patient may have no knowledge of having had a seizure, or a series of seizures, and medication is neglected. Again they think they are getting better and are justified in leaving off the medicine, which of itself, is a sufficient reason for not allowing self administration. It is some trouble it is true for another member of the family to attend to this but if properly done the result often will justify the means.

Frankness, on the part of the physician, in acquainting the parents with the details will often be of utility in many respects. It is not desirable for an epileptic to mingle in society generally; such will certainly bring humility, and probably deleterious results, hence his association should be in the hands of his immediate family, and at the courting period the patient himself should be acquainted with the impropriety of forming matrimonial relations; by so doing much misery may be prevented.

Chloral bromide treatment.—Occasionally we find a case where the bromides alone do not give the desired result; the patient does not do well, he has digestive defects, undesirable degree of dementia may be present with convulsions continuing, severe confluent acne (*ulcus elevatum* described by Seguin in Archives of Medicine, New York, 1882), may be present. It is true this class of cases is not often encountered, but when we do meet with them they are the very ones that bother us greatly and tax our resources.

In my hospital practice we combined bromide with chloral with advantage in these cases; for each grain of bromide reduction from the dose a grain of chloral hydrate was added. The amount of chloral given will vary from three to ten grains, though in the majority of cases it is not necessary to go above six grains at a single dose. To commence on I use about the following combination, viz:

R Chloral Hydt. (Schering's crystals).....	℥ijj
Sodii bromidi	℥iss
Aquae, ad.....	℥vjj

M Each teaspoonful contains about three grains of chloral and twelve grains of bromide.

The amount of chloral can be increased proportionally as may be indicated. Sometimes the patient manifests a desire to sleep after substituting the chloral, but just let him sleep as no damage is going to be done by it and in a short time it will pass away leaving your patient mentally brighter than when he was confined to bromides alone.

I have intentionally omitted the use of other drugs as our time has been too limited to allow us to deal expansively with so large a subject as this, however, you must be ready in all morbid conditions to recognize the necessity of instituting a general systemic treatment when indicated. I trust from the foregoing that you will understand me as being an advocate of the continuous, systematic, and non-intermittent treatment of epilepsy.